

Adjustments to ORDC for Operator Actions

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- Goal is to allow system operators flexibility in managing and maintaining system reliability but capture these actions in the market pricing
- PJM initially discussed the use of a “extreme day” ORDC curve
 - Curve utilized on days where operators take action due to greater than normal uncertainty (specifically, forced outage uncertainty)

- Current thinking is adjustments should be made on a case by case basis instead of using a pre-defined curve
- Adjustments would be made to the base requirement portion of the curve
 - Operator adjusts the Minimum Reserve Requirement (MRR) not the slope of the curve
- For purposes of discussion we will focus on adjustments to the real time 10 minute SR and PR requirements
 - The methodology discussed can be applied to a 30 minute DA and 30 minute RT ORDC curves if/when they are developed

- Adjustments to the MRR portion of the curve can be classified as either a Market Adjustment or Out of Market Adjustment
- Market Adjustments - Operator identifies need for additional reserves and adds desired MW to the MRR.
 - No specific resource is identified. The market will select the least cost set of resources to provide the reserves.
 - Operator defines the hours the MRR is adjusted based on the operating condition driving the need for additional reserves.

- Examples of Market Adjustments
 - Changes in system topology that effect the largest contingency
 - Extreme weather event
 - Hurricane Sandy – Covering Nuclear units potentially taken offline due to high winds
 - Tail end of a hot weather event - Increased uncertainty in forced outages and weather forecast
 - First extreme cold day (Polar Vortex type event)

- Out of Market Adjustments –
- Dispatch may commits a unit outside of the market clearing engines based on reliability needs not modeled in the software
 - MRR is updated to reflect the additional reserves created by that action
 - Reflects operator actions in prices
 - Examples of Out of Market Adjustments
 - Unit committed for a non-market facility at the request of the Transmission Operator (TO)
 - Reactive Issues/Voltage Issues which cannot be priced in the market
 - Severe weather events (Polar Vortex, Hurricane)

- Add X (MW) to the MRR
 - $X = \text{EcoMin} * 1/3 + ((\text{Ramp Rate} * \text{Degree Of Generator Performance}) * 10 \text{ min})$
- Operator defines the hours the MRR is adjusted based on the operating condition driving the need for additional reserves.
 - Based on call on time, and extends until the resource is released

- Real Time Notification
 - Market Adjustments
 - Provide notification to Market Participants when the MRR is adjusted by Operator Action using existing notification process when additional spinning reserve is carried today
 - Post informational message which is accessible in Markets Gateway and PJM Tools/My Tools Home
 - Market and Out of Market Adjustments
 - In Data Viewer include the MW added to the MRR requirement
 - Both Market and Out of Market Adjustments

- Historical Posting
 - Provide the following information:
 - Reason for the change
 - Impacted hours
 - MW amount
 - Method TBD – considering posting through Data Miner 2